

Chapter 1: Overview of SEER*DMS

The Surveillance, Epidemiology, and End Results (SEER) Program is an initiative sponsored by the National Cancer Institute (NCI) to collect cancer incidence and related information from population-based cancer registries. Participating registries are required to obtain information on all cancers occurring in their geographic area from a variety of hospitals, pathology laboratories, radiology facilities, physician offices and other facilities. Data collected by the registries are submitted to the NCI and other organizations. This information contributes to national surveillance data on cancer incidence and forms the sole source of population-based estimates of U.S. cancer survival and prevalence.

The SEER Data Management System (SEER*DMS) provides support for all core cancer registry functions -- importing data, editing, linkage, consolidation, and reporting. The individual SEER Registries actively participated in the requirements analysis and design of SEER*DMS. It was determined that despite the variety, number, and complexity of the registries' processes and corresponding functional requirements, a centrally designed data management system could be employed by the various SEER Registries. SEER*DMS improves cost efficiency and reduces duplication of effort in terms of system maintenance and administration. Furthermore, the centralized system design and development improves data quality and consistency, increases efficiency, and increases the sharing of knowledge and experience among registries.

This chapter provides an introduction to SEER*DMS and an overview of the system's support of registry operations. It includes a summary of the system's core components with a reference to the relevant chapters in this manual or in other technical documents.

In this chapter, you'll learn about

- SEER*DMS Reference Materials
- SEER*DMS Database
- Getting Started
- SEER*DMS Workflow and Worklist
- Loading Data into SEER*DMS
- Determining Reportability
- Matching and Consolidating
- Visually Editing and Resolving Patient Set Errors
- Death Clearance and Follow-up
- Maintaining Contact Information for Physicians and Organizational Representatives
- Other Management Tools
- Reports and Data Extracts
- Managing System Accounts and Roles
- System Administration

SEER*DMS Reference Materials

The SEER*DMS Web Portal (<https://seer.cancer.gov/seerdms/portal>) is a secure website that enables NCI-SEER, IMS, and registry staff to share information related to the SEER*DMS project. SEER*DMS reference materials, data dictionaries, system and database diagrams, Change Control Board (CCB) news and information, sample reports, and other information are available on this site. Registry-specific materials are available in restricted-access folders. The registry-specific materials include registry-specific database documentation, technical references, diagrams of hardware architecture, and real-time access to graphs showing resource utilization by the SEER*DMS servers at the registry.

The *SEER*DMS User Manual* describes the features of SEER*DMS and provides step-by-step instructions for using the system. This user manual is provided in a printed format and as an integrated help system.

The *SEER*DMS Technical Reference* provides instructions for configuring workflow tasks, maintaining the system's server, and setting configuration parameters. The *SEER*DMS Technical Reference: Registry-specific Information* describes the algorithms and other settings configured in SEER*DMS at your registry; it also contains information about the data files that can be loaded into SEER*DMS at your registry.

The System > Administration feature of the SEER*DMS application allows you to monitor system logs, review the registry-specific configuration settings and algorithms implemented in SEER*DMS, access the version history, and view SQL used in SEER*DMS system reports.

SEER*DMS Database

The SEER*DMS Web Portal is the most comprehensive resource of documentation related to the SEER*DMS database. The following materials are available online:

- *Description of each table in the database*
- *Mapping of database fields to the labels used in SEER*DMS*
- *Mapping of database fields to NAACCR items*
- *Diagrams showing table relationships*

A more basic overview of the SEER*DMS database structures related to patient data is provided in:

- *Chapter 2: Records and Patient Sets*

Getting Started

SEER*DMS allows the user to interact with the registry's Oracle database through an interface displayed in a Web browser. This design reduces maintenance of individual workstations by providing a mechanism for simultaneously delivering system upgrades to all registry desktops.

Instructions for getting started with SEER*DMS are described in:

- *Chapter 3: Using SEER*DMS*

SEER*DMS Workflow and Worklist

The workflow is the back-bone of SEER*DMS. The workflow is a configurable infrastructure that controls the flow of data through the system and identifies tasks that must be completed by staff members. A record entering the workflow is initially processed in a series of automatic tasks. If human attention is required in order to complete a task, a manual task is initiated. Once a staff member completes the manual task, the record continues to the next task in the workflow. The record moves from automatic to manual tasks as necessary, until all steps required to process the data are complete.

The SEER*DMS worklist provides a view of automatic tasks that are currently running and manual tasks that require attention. The manual tasks displayed in the worklist are the staff's "to do list". Users can select tasks or managers can assign tasks to users, depending on registry policy.

Step-by-step instructions are provided in:

- *Chapter 4: Using the Worklist*

Loading Data into SEER*DMS

Data files may be uploaded using the SEER*DMS interface or auto-loaded from a specified network location. In addition, SEER*DMS includes data entry screens that allow a user to enter data using the keyboard.

Step-by-step instructions are provided in:

- *Chapter 5: Importing Data Files*
- *Chapter 6: Data Entry*

Determining Reportability

SEER*DMS uses a combination of automatic and manual workflow tasks to determine a record's reportability. The workflow can be configured to determine reportability automatically, based on local eligibility criteria, or it can be configured to defer screening decisions to registrars performing manual screening tasks.

When a record enters the system, an automated task checks the record for errors based on SEER and local edits. The edit logic, an error message, and a severity level are defined for each edit in system configuration files. "Critical" is the severity level assigned to edit errors that must be resolved in order for the system to store the data. "High" is assigned to edit errors that must be resolved prior to screening the record for reportability. Edits are assigned a high severity level if the error must be resolved immediately (e.g., to facilitate rapid case ascertainment for special studies), or the data items are required to determine reportability. A Resolve Record Errors task is created when errors with a critical or high severity level are encountered. The record errors must be resolved in order for the record to enter the screening phase of the workflow.

Step-by-step instructions are provided in:

- *Chapter 7: Edit Errors*
- *Chapter 8: Resolving Record Errors*
- *Chapter 9: Screening for Reportability*

Matching and Consolidating

A "patient set" is a packet of data in the SEER*DMS database which includes all data associated with a particular patient. These data include patient demographics, information on all reportable tumors, admissions information, diagnostic procedures, treatment information, and text documentation. An incoming record for a reportable cancer is matched against the database to determine if it needs to become a new patient set or become part of an existing patient set. Once the matching process is complete, the record is either consolidated with an existing patient set or used to create a new patient set. If two non-reportable records match each other but do not match an existing patient set, the records can be manually screened to determine if a combination of data from the two records can be consolidated to create a new patient set.

Information and instructions related to matching and consolidation are provided in:

- *Chapter 10: Matching Incoming Records to Existing Data*
- *Chapter 11: The Patient Set Editor*
- *Chapter 12: Consolidating Data*
- *Chapter 15: Re-screening of Non-reportable Records*

Visually Editing and Resolving Patient Set Errors

Quality control of data involves the review of edit errors identified by the computerized edits and a visual review of data fields. It is recommended that, whenever possible, changes be made to the patient set and not to the record. In SEER*DMS, the Visual Edit Patient Set task enables registrars to visually review data for a new patient, when a patient set is auto-created from a single abstract record. Consolidation tasks enable registrars to visually review incoming data as they consolidate the data with other data previously loaded into the system. The edit errors identified by the computerized edits may be resolved in these tasks, or the patient set may be saved with errors and forwarded to a Resolve Patient Set Errors task.

Information and instructions related to editing and resolving patient set errors are provided in:

- *Chapter 7: Edit Errors*
- *Chapter 12: Consolidating Data*
- *Chapter 13: Visual Editing*
- *Chapter 14: Resolving Patient Set Errors*

Death Clearance and Follow-up

"Follow-up" refers to the surveillance processes used to gather new information about a patient regarding treatment outcomes and survival. Death clearance is a combination of follow-up and casefinding processes. The purpose of death clearance is to link death certificate records with the registry database to determine deaths among registrants and to identify deaths from cancer among persons previously unknown to the registry. SEER*DMS provides mechanisms for facilitating and monitoring follow-up and death clearance processes.

Information and instructions related to these topics are provided in:

- *Chapter 16: Follow-up*
- *Chapter 17: Death Clearance*

Maintaining Contact Information for Physicians and Organizational Representatives

SEER*DMS maintains information about organizations and facilities that collaborate with the cancer registry and contact information for physicians and representatives of collaborative organizations. The organization and contact lists are referenced throughout SEER*DMS when selecting values for data fields, tracking data and follow-back sources, and managing abstracting assignments.

Information and instructions related to these topics are provided in:

- *Chapter 18: The Organization and Facility List*
- *Chapter 19: The Contact List*

Other Management Tools

SEER*DMS provides management tools for monitoring and assigning casefinding leads; for managing and processing follow-back needs; and for submitting and tracking requests to facilities for records. In addition, SEER*DMS includes a mechanism to search the database based on patient identifiers. The search utility is useful in support of a variety of management tasks.

Information and instructions related to these topics are provided in:

- *Chapter 20: Searching for Records and Patients*

- *Chapter 21: Managing Abstracting Assignments*
- *Chapter 22: Follow-back*
- *Chapter 23: Submitting a Request to a Facility for Records*

Reports and Data Extracts

SEER*DMS includes a variety of Standard Reports which summarize registry activities, track data through the system, and provide other quality control information. Extracts for SEER and NAACCR data submissions are also integrated within SEER*DMS. All reports and extracts available in SEER*DMS are documented in *Appendix A: SEER*DMS System Reports*.

In addition, external reports and data extracts may be generated that query the SEER*DMS database using any of a variety of software packages. External reports and extract programs must be maintained by registry staff.

Information and instructions related to integrated reports and extracts are provided in:

- *Chapter 24: Creating Reports and Extracting Data*
- *Appendix A: SEER*DMS System Reports*

Managing System Accounts and Roles

Registry managers and/or system administrators are responsible for creating SEER*DMS user accounts and enabling system permissions by assigning roles to those accounts.

Information and instructions related to these topics are provided in:

- *Chapter 25: Managing User Accounts*
- *Chapter 26: Managing System Roles*

System Administration

SEER*DMS is a Web-based application that interacts with the registry's Oracle database. The registry's information technology (IT) staff are responsible for a variety of tasks related to maintaining the integrity and security of the database, providing ad hoc programming support to registry staff, and maintaining the hardware systems that support SEER*DMS.

Information and instructions related to system administration are provided in:

- *Chapter 27: System Administration*

